

SPECIFICATION

TITLE OF INVENTION

Invention - Underground Irrigation Systems for Lawn

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CROSS REFERENCE TO RELATED APPLICATION

N/A

STATEMENT OF FEDERALLY SPONSORED RESEARCH/DEVELOPMENT

N/A

REFERENCE TO A "SEQUENCE LISTING"

N/A

BACKGROUND OF THE INVENTION

Irrigation systems for lawns

BRIEF SUMMARY OF THE INVENTION

Design #1:

This type of Underground Irrigation System consists of spiral pipes that are made of $\frac{3}{4}$ " or $\frac{1}{2}$ " in diameter steel spirals and covered with Fabric or other Water Drench Materials (FWDM).

Design #2:

This type of Underground Irrigation System consists of pipes that are made of $\frac{3}{4}$ " or $\frac{1}{2}$ " in diameter Water Drench Materials (WDM).

Design #3:

This type of Underground Irrigation System consists of 3' x 3' size units that are made of $\frac{3}{4}$ " and $\frac{1}{2}$ " in diameter pipes with small holes around the surface of pipes, and covered with Fabric or other Water Drench Materials (FWDM).

BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWINGS

Design #1:

Drawing #1 - Spiral Pipes Irrigation System Layout

Drawing #2 - $\frac{3}{4}$ " or $\frac{1}{2}$ " Spiral Pipe Details

Drawing #3 - Spiral Pipe Section

Drawing #4 - Spiral Pipes Embedded in Topsoil

Design #2:

- Drawing #1 - Drench Pipes Irrigation System Layout
- Drawing #2 - $\frac{3}{4}$ " or $\frac{1}{2}$ " Drench Pipe Details
- Drawing #3 - Drench Pipe Section
- Drawing #4 – Drench Pipes Embedded in Topsoil

Design #3:

- Drawing #1 - 3' x 3' Irrigation Unit with 6" x 6" cells
- Drawing #2 - Irrigation (4) Units Assembly
- Drawing #3 - $\frac{3}{4}$ " Pipe Details
- Drawing #4 - $\frac{1}{2}$ " Pipe Details
- Drawing #5 - Pipe Section
- Drawing #6 - Unit Pipes Embedded in Topsoil

DETAILED DESCRIPTION OF THE INVENTION

Design #1:

This type of Underground Irrigation System consists of spiral pipes that can be made of $\frac{3}{4}$ ", or $\frac{1}{2}$ ", or other diameter steel spirals and covered with FWDM. Because of outside pressure, it is necessary to provide the spiral inside the pipes, to form and keep the round shape for FWDM. FWDM needs to be strong and tight enough to withstand outside and inside pressure and keep water from splashing from FWDM surface, and at the same time it should allow water to penetrate FWDM and soak the environmental substance. Thickness of FWDM can be $1/8$ " or different to comply with the design. FWDM will be provided at the factory and unit should come ready to install.

During the landscaping, the system needs to be assembled within the borders of lawn by connecting spiral pipes to 1", or $\frac{3}{4}$ ", or other size Poly Vinyl Chloride (PVC) pipe, with 6" space or larger between connections, using clamps. Sleeves that are not used should be closed with caps.

After system is assembled and connected to the main feeding water pipe, it needs to be tested. Topsoil needs to be placed above the system to provide smooth surface and sod should be placed above the topsoil following that procedure.

During the watering, water under the pressure goes through the spiral pipes and soaks FWDM that soaks the surrounding topsoil from which the grass roots take moisture. In the future, if the system needs to be extended, caps can be removed and new spiral pipes connected to the existing pipes, or to the additional 1", or $\frac{3}{4}$ ", or other size PVC pipe with sleeves. If it is necessary to shrink the existing system, it can be done easily by cutting and capping the pipes.

Design #2:

This type of Underground Irrigation System consists of pipes that can be made of $\frac{3}{4}$ ", or $\frac{1}{2}$ ", or other size in diameter WDM.

Drench pipes that are made from WDM need to be strong and thick enough to withstand outside and inside pressure and keep water from splashing from WDM surface, and at the same time it should allow water to penetrate WDM and soak the environmental substance.

During the landscaping, the system needs to be assembled within the borders of lawn by connecting drench pipes to 1", or 3/4", or other size PVC pipe, with 6" space or larger between connections, using clamps. Sleeves that are not used should be closed with caps. After the system is assembled and connected to the main feeding water pipe, it needs to be tested. Topsoil needs to be placed above the system to provide smooth surface and sod should be placed above the topsoil following that procedure.

During the watering, water under the pressure goes through the drench pipes and soaks the pipes that soak the surrounding topsoil from which the grass roots take moisture.

In the future, if system needs to be extended, caps can be removed and new drench pipes connected to the existing pipes or to the additional 1", or 3/4", or other size PVC pipe with sleeves. If it is necessary to shrink the existing system, it can be done easily by cutting and capping the pipes.

Design #3:

This type of Underground Irrigation System consists of 3' x 3' or other size units that can be made of 3/4", or 1/2 ", or other size pipes, which cast or welded in 6" x 6" or other size cells. Unit can be made of PVC or other materials, with small holes around the pipes and covered with FWDM to prevent the clogging of the holes with dirt and roots.

Size of holes is approximately 1/32" and can vary, as well as a quantity of them per square inch of pipe's surface, depending on how tight and thick FWDM will be around the pipes, and pressure of water in the system.

FWDM needs to be strong and tight enough to keep water from splashing from FWDM surface, and at the same time it should allow water to penetrate FWDM and soak the environmental substance. Thickness of FWDM can be 1/8" or different, to comply with the design. Holes and FWDM will be provided at the factory and unit should come ready to install.

During the landscaping, the system needs to be assembled within the borders of lawn by connecting 3' x 3' units to each other using clamps. Sleeves that are not used should be closed with caps.

After the system is assembled and connected to the main feeding water pipe, it needs to be tested. Topsoil needs to be placed above the system to provide smooth surface and sod should be placed above the topsoil following that procedure.

During the watering, water under the pressure goes through the holes and soaks FWDM that soaks the surrounding topsoil from which the grass roots take moisture.

In the future, if system needs to be extended, caps can be removed and new units connected to the existing units. If it is necessary to shrink the existing system, it can be done easily by cutting and capping the pipes.

General note for Design #1, Design #2 & Design #3:

With the time, grass roots grow around the pipes and it will increase the watering time, which needs to be adjusted.

Advantage of the Invention:

These systems (Design #1, Design #2 & Design #3) will consume much less water than the perfectly adjusted traditional sprinkler systems, because it delivers moisture right to